Gas Storage Improvement – Compressor and Dehydration

2003

TROY GROVE EXPANSION
DETAILED COST ESTIMATE

02/02/2001

		Material	Nicer Gas Labor	Contract Labor Mechanical	Contract Labor Electrical	Total
I.	**New Compressor**					
A.	Compressor 10,000Hp	$4,700,000	$2,000	$5,700,000		$10,402,000
B.	Control Panel	5,900	10,000		$20,000	35,900
C.	Instrumentation	16,900		70,000		86,900
D.	Exhaust Silencer	34,800		8,000		42,800
E.	Spare Parts	141,910				141,910
F.	Piping	13,500		60,000		73,500
G.	Misc. Bolts, Gaskets	1,500		6,000		7,500
		4,914,510	12,000	5,844,000	20,000	10,790,510
II.	**Dehdration Tower**					
A.	Glycol Dehy Towers (6 MM/hr, 2 MM/hr)	460,000	15,000	375,000		850,000
B.	Foundations	20,000		140,000		160,000
C.	Piping	60,000		250,000		310,000
D.	Valves	53,200	10,000	60,000		123,200
E.	Misc. Bolts, Gaskets	3,000		6,000		9,000
		596,200	25,000	831,000	0	1,452,200
III.	**Reboiler**					
A.	Glycol Reboiler	280,000		200,000	10,000	490,000
B.	Foundations	20,000		140,000		160,000
C.	Piping	50,000		200,000		250,000
D.	Misc. Bolts, Gaskets	3,000	3,000	5,000		11,000
		353,000	3,000	545,000	10,000	911,000
IV.	**Piping Bottleneck Revision**					
A.	6" - A Sand North	10,000	5,000	35,000		50,000
B.	16" in Station	50,000	5,000	75,000		130,000
C.	12" - A Sand South	39,250	5,000	250,750		295,000
		99,250	15,000	360,750	0	475,000
V.	**Metering Revisions**					
A.	Misc.	50,000	5,000	50,000		105,000
		50,000	5,000	50,000	0	105,000
	Total Cost	$6,012,960	$60,000	$7,630,750	$30,000	$13,733,710

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nicor GAS

MEMORANDUM

Date: March 05,2002

Subject: Troy Grove Capital Investment Projects

From: Jay Smith

To: Mario Morrell

CC: Steve Cushman
Bob Mudra
Doug Ruschau

Proposals

Nicor Gas' Troy Grove operations have several pieces of compressor equipment and engines that are nearing the end of their useful operating lives. This plant equipment has developed some mechanical problems that need to be repaired in order to keep the equipment operational. Equipment failure could result in several million dollars of unanticipated expenses for Nicor Gas because this equipment is used for fast system injection / withdrawals especially on peak day demands or other occasions requiring immediate supply adjustments.

The Supply Operations department is proposing three capital projects to provide for immediate equipment repairs and rehabilitation. These three investments should lengthen the existing equipment useful life for a few more years. This time would be used to plan for the expensive capital needs required for the total compressor replacement. The total replacement scenarios would cost $24 million (+) for 2 compressor replacements and will take up to one and one half years to complete installation.

The three projects analyzed for extending the equipment lives are

1) The Cooper #28 Compressor and Engine Upgrade – Troy Grove Project Cost Estimate: $862,000
2) The upgrade of the 180#ESD system – Troy Grove Project Cost Estimate: $304,000
3) The Cooper #29 Air Filters Upgrade – Troy Grove Project Cost Estimate: $410,000

Key Financial Assumptions

The key financial assumptions for the three projects are shown below:

Capital Investments	Other Operating Expenses	Total Project Investment
Project#1: $722,000	$ 140,000	$ 862,000
Project #2: $207,000	$ 97,000	$ 304,000
Project #3: $364,000	$ 46,000	$ 410,000

Cost of Capital (After-Tax): 10%
Book Depreciable Life: 30 Years
Tax Depreciable Life: 15 Years

Financial Results

All three projects would upgrade existing capital investments. These projects would not provide any new increase in revenues or decreases in operating expenses. Attachments **A** through F show the project net present value calculations and the detailed expenses related to the projects. At a 10% after tax cost of capital, the projects are expected to produce the following negative net present values:

	Net Present Value
Project #1 Cooper #28 Compressor and Engine Upgrade	- $672,000
Project #2 Upgrade of the 180# ESD system	- $223,000
Project #3 Cooper #29 Air Filter Upgrade	- $325,000

All three projects would also have negative internal rates of return.

Compressor Failure Estimate

A related question that you had asked regarded an estimate of the timing of compressor failure for the Troy Grove equipment. I have calculated a cost of failure based upon the two scenarios that you had requested:

1) Compressor Failure – Compressor replacement and purchase of firm gas transportation (2 winters – 1 and 112 year assumption)

2) Compressor Failure – Compressor replacement and purchase of peak day gas (2 Winters)

For these two scenarios, I calculated the expected cost of failure and replacement using the firm gas costs and peak day cost information that you had provided along with the expected mechanical failure rate. For the scenarios, I assumed a complete winter failure, which would require firm transportation / peak day service for the remainder of the first winter as well as the entire next winter since the compressor replacement would take about 1 and 1/2 years. Details of these financial scenarios are shown in Attachments G through J.

The net present value of the expected cost for compressor failure and replacement exceeded the net present value of the compressor replacement in the year winter of 2007 for the firm transportation scenario and in the winter of 2008 in the peak gas supply scenario (Attachment G). Nicor Gas would spend more money repairing and purchasing firm transportation or peak day gas ("on an expected cost basis") rather than direct replacement of the compressors. Therefore, from an financial perspective, Nicor Gas would want to begin compressor installation more than 1 1/2 years before the expected failure in the winter of 2007 (begin installation – spring, 2005 for firm transportation scenario) or year 2008 (begin installation – spring, 2006 peak gas purchase scenario).

From an operational perspective, I would recommend serious consideration of even moving the capital investment up one year earlier (spring, 2004 initial replacement) due to the large increase in replacement failure rates from 2005 to 2006. The expected mechanical failure rate jumps almost by 20% between these years from 27.5% to 47.5%. From a financial perspective, the "expected" failure cost is still below $17.8 MM, which is still below the cost of replacement. However, the actual cost of repairs for replacement and firm transportation / failure would be $37 million if failure occurs, a $15 million higher cost figure than immediate replacement. With the odds of failing almost one in two (47.5% estimate), Nicor Gas may want to replace equipment one year sooner than risk an additional $15 million cost. The ability to avoid the 47% chance of spending $15 million more from equipment expense failure might be worth the additional financing costs ($2.4 million @ 10% cost of capital). Please note that these estimates are very "high level" guesstimates that were prepared to give you a feel for the replacement timing. The exact year of replacement should be based upon the equipment assessment.

Financial Summary

Troy Grove Supply Operations are considering investments to extend the compressor equipment life for a few more years. The three potential investments have negative expected net present value costs of

Cooper #28 Compressor and Engine Upgrade	- $672 thousand
Project #2 Upgrade of the 180# ESD system	- $223 thousand
Project #3 Cooper #29 Air Filter Upgrade	- $325 thousand

Based upon high level estimates of expected failure compressor equipment failure costs, equipment replacement should begin by spring 2005 - 2006 to be completed for the winter of 2007 / 2008. From an operational perspective, it may be prudent to budget the compressor replacement one year sooner to avoid failure potential due to the high jump in expected failure costs. Please note that these financial estimates are very "high level" guesstimates. The exact year of replacement should be based upon the specific equipment assessment, the availability and the cost of alternatives (firm transportation / peak day gas) and the company's capital budgeting.

Nicor Gas
Troy Grove
Compressor Upgrade #28

(Thousands)

(Thousands)

RESULTS		
NPV OF CASH FLOWS (DISCOUNT RATE =	10.00%)	($672)
PRESENT VALUE OF REV REQ (SAVINGS)		$1,113
INTERNAL RATE OF RETURN		#DIV/0!
RETURN ON EQUITY		#DIV/0!
TOTAL PROJECT CAPITAL INVESTMENT		$722

FINANCIAL ASSUMPTIONS			
PERCENTAGE DEBT	43.00%	COMBINED TAX RATE	39.67%
LT DEBT INTEREST RATE	7.80%	INVESTED CAPITAL TAX RATE	0.80%
REQ RETURN ON EQUITY	14.00%	REQ RETURN ON TOTAL CAPITAL (BTX)	11.33%
O&M INFLATION RATE	2.50%	REQ RETURN ON TOTAL CAPITAL (ATX)	10.00%

OPERATING CASH FLOW:														
PROJECT YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13
INVESTMENT	($722)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REVENUES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATING EXPENSES	0	(140)	0	0	0	0	0	0	0	0	0	0	0	0
OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INV CAPITAL TAX	0	(6)	(6)	(5)	(5)	(5)	(4)	(4)	(4)	(4)	(3)	(3)	(3)	(3)
INC TAX	0	72	29	27	24	22	20	19	18	18	18	18	18	18
CASH FLOW	($722)	($74)	$24	$21	$19	$17	$15	$14	$15	$15	$15	$15	$15	$15
CUML CASH FLOW	($722)	($796)	($772)	($750)	($731)	($714)	($699)	($685)	($670)	($655)	($641)	($626)	($610)	($595)

INCOME TAX BEFORE INTEREST EXPENSE													
PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13
REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LESS - OPERATING EXPENSES	140	0	0	0	0	0	0	0	0	0	0	0	0
- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0	0	0	0
- TAX DEPR	36	69	62	56	50	45	43	43	43	43	43	43	43
- ICT	6	6	5	5	5	4	4	4	4	3	3	3	3
TAXABLE INCOME	(182)	(74)	(67)	(61)	(55)	(49)	(47)	(46)	(46)	(46)	(46)	(45)	(45)
INCOME TAXES	($72)	($29)	($27)	($24)	($22)	($20)	($19)	($18)	($18)	($18)	($18)	($18)	($18)

ICT													
PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13
BEG BOOK BASIS	$722	$710	$686	$662	$638	$614	$590	$566	$542	$517	$493	$469	$445
LESS: PREV DEFERRED TAXES	0	10	27	42	55	65	73	81	88	95	103	110	117
TAXABLE BASIS	722	700	659	620	583	549	516	485	454	422	391	359	328
INV CAPITAL TAX	$6	$6	$5	$5	$5	$4	$4	$4	$4	$3	$3	$3	$3

DEPRECIATION													
PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13
BEG TAX BASIS	$722	$686	$617	$556	$500	$450	$405	$362	$320	$277	$235	$192	$149
ADDITIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ TAX BASIS	722	686	617	556	500	450	405	362	320	277	235	192	149
TAX DEPR	36	69	62	56	50	45	43	43	43	43	43	43	43
CUML TAX DEPR	36	105	166	222	272	317	360	402	445	487	530	573	615
ENDING TAX BASIS	686	617	556	500	450	405	362	320	277	235	192	149	107
BEG BOOK BASIS	722	710	686	662	638	614	590	566	542	517	493	469	445
ADDITIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ BOOK BASIS	722	710	686	662	638	614	590	566	542	517	493	469	445
BOOK DEPR	12	24	24	24	24	24	24	24	24	24	24	24	24
CUML BOOK DEPR	12	36	60	84	108	132	156	181	205	229	253	277	301
ENDING BOOK BASIS	710	686	662	638	614	590	566	542	517	493	469	445	421

Nicor Gas
Troy Grove Storage
Compressor Upgrade Cooper #28

Attachment B

Proposed Expenditure Estimates For Troy Grove

Project Cost Breakdown Estimates

Cooper #28 Compressor Upgrade:

Direct Labor:	$25,000
Vendor/Material:	$345,000
Testing:	$10,000
Contractor Cost:	$30,000
Module Repair:	$3,000
Oil Replacement:	$14,000
TravelIlnspection:	$5,000
Crane Rental:	$4,500
Misc. Material:	$6,000
Total Project Cost:	$442,500
Other / Contingency:	$7,500
Total Project Estimate	$450,000

Capital	$345,000
Other Expense	$105,000
Total Project Estimate	$450,000

Rolls Royce PLC
Engines/Compressors
Plant Account # 35400

	Estimated Costs
Item #8 – Compressor Rotor Shaft –	$20,000
Item #10 – Compressor Wheel/Stator –	$280,000
Vendor Labor –	$45,000
Vendor Material Detail:	$345,000

Cooper #28 Engine Upgrade:

Direct Labor:	$15,000
Vendor/Material:	$377,000
Testing:	$10,000
Contractor Cost:	$5,000
Module Repair:	$0
Oil Replacement:	$500.00
TravelIlnspection:	$3,000
Crane Rental:	$1,000
Misc. Material:	$500
Total Project Cost:	$412,000

WoodGroupPrattWhitney:
Engines/Compressors
Plant Account # 35400

	Estimated Costs
Item #16 Engine Bearing/Bushing – Quantity (6)	$30.000
Item #23—Engine Jet Accessory Drive – Quantity (1) –	$25,000
Item #24-- Engine Jet Compressor Stage – Quantity (1)	$90,000
Item #25-- Engine Jet Gas Generator – Quantity (1)	$150,000
Item #29—Engine Oil Pump – Quantity (2)	$5,000
Item #33—Engine Starters – Quantity (1)	$12,000
VENDOR LABOR – Estimated Cost	$65.000
Vendor 1 Material Detail:	$377,000

Capital	$377,000
Other Expense	$35,000
Total Project Estimate	$412,000

Total Estimated Project Cost	($)
Cooper #28 Compressor Capital	$345,000
Cooper #28 Engine Upgrade Capital	$377,000
Total Capital	$722,000

Total Estimated Project Cost	($)
Cooper #28 Compressor Other Exp	$105,000
Cooper #28 Engine Upgrade Oth Op Exp	$35,000
Total Operating Expense	$140,000

Total Project Expense	$862,000

Nicor Gas
Troy Grove Capital In\ , \ent
Project: Upgrade the 180# ESD System - Troy Grove

RESULTS:		
NPV OF CASH FLOWS (DISCOUNT RATE =	10.00%)	($223)
PRESENT VALUE OF REV REQ (SAVINGS)		$370
INTERNAL RATE OF RETURN		#DIV/0!
RETURN ON EQUITY		#DIV/0!
TOTAL PROJECT CAPITAL INVESTMENT		$207

FINANCIAL ASSUMPTIONS:			
PERCENTAGE DEBT	43.00%	COMBINED TAX RATE	39.67%
LT DEBT INTEREST RATE	7.80%	INVESTED CAPITAL TAX RATE	0.80%
REQ RETURN ON EQUITY	14.00%	REQ RETURN ON TOTAL CAPITAL (BTX)	11.33%
O&M INFLATION RATE	3.00%	REQ RETURN ON TOTAL CAPITAL (ATX)	10.00%

OPERATING CASH FLOW

PROJECT YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INVESTMENT	($207)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REVENUES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATING EXPENSES	0	(97)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INV CAPITAL TAX	0	(2)	(2)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
INC TAX	0	43	8	8	7	6	6	5	5	5	5	5	5	5	5	5
CASH FLOW	($207)	($55)	$7	$6	$5	$5	$4	$4	$4	$4	$4	$4	$4	$4	64	$4
CUML CASH FLOW	($207)	($262)	($255)	($249)	($244)	($239)	($234)	[2301	($226)	($222)	($218)	($213)	($209)	($205)	($200)	($196)

INCOME TAX BEFORE INTEREST EXPENSE

PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LESS - OPERATING EXPENSES	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-TAX DEPR	10	20	18	16	14	13	12	12	12	12	12	12	12	12	12
- ICT	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
TAXABLE INCOME	(109)	(21)	(19)	(17)	(16)	(14)	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
INCOME TAXES		($8)	($8)	7)	($6)	($6)	1651	1651	($5)	($5)	1651	($5)	($5)	($5)	($5)

ICT

PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BEG BOOK BASIS	$207	$203	$196	$189	$162	$176	$169	$162	$155	$148	$141	$134	$127	$120	$114
LESS: PREV DEFERRED TAXES	0	3	8	12	16	19	21	23	25	27	29	31	34	36	38
TAXABLE BASIS	207	200	188	177	167	157	148	139	130	121	112	103	94	85	76
INV CAPITAL TAX	$2	$2	$2	$1	$1		$1	$1	$1	$1	$1	$1	$1	$1	$1

DEPRECIATION

PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BEG TAX BASIS	$207	$196	$177	$159	$143	$129	$116	$104	$91	$79	$67	$55	$43	$30	$18
ADDITIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ TAX BASIS	207	196	177	159	143	129	116	104	91	79	67	55	43	30	18
TAX DEPR	10	20	18	16	14	13	12	12	12	12	12	12	12	12	12
CUML TAX DEPR	10	30	48	63	78	91	103	115	127	139	152	164	176	188	200
ENDING TAX BASIS	196	177	159	143	129	116	104	91	79	67	55	43	30	18	6
BEG BOOK BASIS	207	203	196	189	182	176	169	162	155	148	141	134	127	120	114
ADDITIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ BOOK BASIS	207	203	196	189	182	178	169	162	155	148	141	134	127	120	114
BOOK DEPR	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7
CUML BOOK DEPR	3	10	17	24	31	38	45	52	59	65	72	79	86	93	100
ENDING BOOK BASIS	203	196	189	182	176	169	162	155	148	141	134	127	120	114	107

Nicor Gas

Attachment **D**

Troy Grove Capital Investment

Project: Upgrade the 180# ESD System - Troy Grove

Proposed Expenditure Estimates For Troy Grove

Project Cost Breakdown Estimates

ESD System:	($)	
Direct Labor:	$20,000	
Vendor/Material:	$202,000	Capital - Detail Shown Below
Contractor Cost:	$70,000	
Electrical Work:	$5,000	
Crane Rental:	$2,000	
Misc. Material:	$4,500	Capital - Detail Shown Below
Total Project Cost:	$303,500	

Capital Detail

Engines/Compressors Plant Account # 35400	Estimated Costs
Item #37 Fire Protection System	
Piping – Estimated Cost	$30,000
Actuation Valves – Estimated Cost	$160,000
Tubing – Estimated Cost	$2,000
Corrosion Protection – Estimated Cost	$10,000
Total Costs	$202,000

Item #37 Fire Protection System	Estimated Costs
Spiral Wound Gasketing – Estimated Cost	$2,000
Studs/Nuts/Bolts – Estimated Cost	$2,500
Total Costs	$4,500

Capital Detail	$206,500
Other Expense	$97,000
Total Project Cost	$303,500

Attachme

Nicor Gas
Troy Grove Capital Inve. ..nt
Project: Cooper #29 Air Filters - Troy Grove

RESULTS		
NPV OF CASH FLOWS (DISCOUNT RATE =	10.00%)	($325)
PRESENT VALUE OF REV REQ (SAVINGS)		$538
INTERNAL RATE OF RETURN		#DIV/0!
RETURN ON EQUITY		#DIV/0!
TOTAL PROJECT CAPITAL INVESTMENT		$364

FINANCIAL ASSUMPTIONS			
PERCENTAGE DEBT	43.00%	COMBINED TAX RATE	39.67%
LT DEBT INTEREST RATE	7.80%	INVESTED CAPITAL TAX RATE	0.80%
REQ RETURN ON EQUITY	14.00%	REQ RETURN ON TOTAL CAPITAL (BTX)	11.33%
O&M INFLATION RATE	3.00%	REQ RETURN ON TOTAL CAPITAL (ATX)	10.00%

OPERATING CASH FLOW																
PROJECT YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INVESTMENT	($364)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REVENUES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATING EXPENSES	0	(46)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INV CAPITAL TAX	0	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(1)	(1)	(1)
INC TAX	0	27	15	13	12	11	10	9	9	9	9	9	9	9	9	9
CASH FLOW	($364)	($22)	$12	$11	$10	$9	$8	$7	$7	$7	$7	$8	$8	$8	$8	$8
CUML CASH FLOW	($364)	($386)	($374)	($363)	($353)	($345)	($337)	($330)	($323)	($315)	($308)	($300)	($293)	($285)	($277)	($269)

INCOME TAX BEFORE INTEREST EXPENSE															
PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LESS - OPERATING EXPENSES	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- TAX DEPR	18	35	31	28	25	23	21	21	21	21	21	21	21	21	21
- ICT	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1
TAXABLE INCOME	(67)	(37)	(34)	(30)	(28)	(25)	(24)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)
INCOME TAXES	($27)	($15)	($13)	($12)	($11)	($10)	($9)	($9)	($9)	($9)	($9)	($9)	($9)	($9)	($9)

ICT															
PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BEG BOOK BASIS	$364	$357	$345	$333	$321	$309	$297	$285	$273	$261	$248	$236	$224	$212	$200
LESS: PREV DEFERRED TAXES	0	5	14	21	28	33	37	41	44	48	52	55	59	63	67
TAXABLE BASIS	364	353	332	312	294	276	260	244	228	213	197	181	165	149	133
INV CAPITAL TAX	$3	$3	$3	$2	$2	$2	$2	$2	$2	$2	$2	$1	$1	$1	$1

DEPRECIATION															
PROJECT YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BEG TAX BASIS	$364	$345	$311	$280	$252	$227	$204	$182	$161	$140	$118	$97	$75	$54	$32
ADDITIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ TAX BASIS	364	345	311	280	252	227	204	182	161	140	118	97	75	54	32
TAX DEPR	18	35	31	28	25	23	21	21	21	21	21	21	21	21	21
CUML TAX DEPR	18	53	84	112	137	160	181	203	224	245	267	288	310	331	353
ENDING TAX BASIS	345	311	280	252	227	204	182	161	140	118	97	75	54	32	11
BEG BOOK BASIS	364	357	345	333	321	309	297	285	273	261	248	236	224	212	200
ADDITIONS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ BOOK BASIS	364	357	345	333	321	309	297	285	273	261	248	236	224	212	200
BOOK DEPR	6	12	12	12	12	12	12	12	12	12	12	12	12	12	12
CUML BOOK DEPR	6	18	30	42	55	67	79	91	103	115	127	139	151	164	176
ENDING BOOK BASIS	357	345	333	321	309	297	285	273	261	248	236	224	212	200	188

Attachment F

Nicor Gas
Troy Grove Capital Investment
Cooper #29 Air Filter Upgrade

Proposed Expenditure Estimates For Troy Grove

Project Cost Breakdown Estimates

Cooper #29 Air Filter:

Direct Labor:	$15,000	
Vendor/Material:	$359,000	See Details Below
Filters:	$15,000	
Contractor Cost:	$9,000	
Plenum Repair:	$2,000	
Electrical Work:	$3,000	
Crane Rental:	$2,000	
Misc. Material:	$4,500	See Details Below
Total Project Cost:	$409,500	

Capital Equipment	**Estimated Cost**
Plant Account # 35400	
Item #1 – Air Filtering System – Estimated Cost ($330,000)	$330,000
Item #2 – Cat Walk and Stairs – Estimated Cost ($6,000)	$6,000
Item #3 – Vendor Labor – Estimated Cost ($8,000)	$8,000
Filter Pack – Estimated Cost ($15,000)	$15,000
Item # 1 Air Filtering System	
Studs/Bolts/Nuts – Estimated Cost ($1,000)	$1,000
Corrosion Protection – Estimated Cost (3,500)	$3,500
Estimated Capital Costs	$363,500

Project Summary	**Estimated Cost**
Capital	$363,500
Other Expense	$46,000
Total Project Estimate	$409,500

Troy Grove Compressor Failure Cost Estimates

Attachment G

Summary - Compressor Replacement Costs Compared To Failure Replacement **Costs**
(**$** Thousand)

Year	NPV Discount Failure = 10%	Compressor Failure Firm Transportation Option NPV	Failure Probability Estimate	Annual Expected Cost Of Failure	Compressor Replacement Net Present Value	
2002	Replacement/ Failure Year 0	$24,236	2.5%	$606	$23,182	
2003	Replacement/ Failure Year 1	$24,841	10.0%	$2,484	$21,601	
2004	Replacement/ Failure Year 2	$25,462	17.5%	$4,456	$22,141	
2005	Replacement/ Failure Year 3	526,099	27.5%	$7,177	$22,695	
2006	Replacement / Failure Year 4	$26.751	47.5%	$12,707	$23,262	
2007	Replacement / Failure Year 5	$27,420	72.5%	$19,880	$23,844	
2008	Replacement / Failure Year 6	$28,106	87.5%	$24,593	$24,440	<<<Failure 2008 >>>
2009	Replacement 1 Failure Year 7	$28,808	92.5%	$26,648	$25,051	
2010	Replacement / Failure Year 8	$29,529	97.5%	$28,790	$25,677	

Year	NPV Discount Failure = 10%	Compressor Failure Firm Transportation Option NPV	Failure Probability Estimate	Annual Expected Cost Of Failure	Compressor Replacement Net Present Value	
2002	Replacement I Failure Year 0	$34,091	2.5%	$852	$23,182	
2003	Replacement I Failure Year 1	$34943	10.0%	$3,494	$21,601	
2004	Replacement / Failure Year 2	$35,817	17.5%	$6,268	$22,141	
2005	Replacement/ Failure Year 3	$36,712	27.5%	$10,096	$22,695	
2006	Replacement/ Failure Year 4	$37,630	47.5%	$17,874	$23,262	
2007	Replacement I Failure Year 5	$38,571	72.5%	$27,964	$23,844	<<<Failure 2007 >>>
2008	Replacement I Failure Year 6	$39,535	87.5%	$34,593	$24,440	
2009	Replacement / Failure Year 7	$40,523	92.5%	$37,484	$25,051	
2010	Replacement I Failure Year 8	$41,536	97.5%	$40,498	$25,677	

Troy Grove Compressor Failure Cost Estimates

Attachment H

Firm Gas Transportation Cost Scenario

Compressor **Failure Expected** Cost (S Thousand)

Year		Year 0 Winter 2002-03	Year 1 Winter 2003-04	Year2 Winter 2004-05	Year3 Winter 2005-06	Year4 Wmter 2006-07	Year5 Winter 2007-08	Year6 Winter 2008-09	Year7 Winter 2009-10	Year8 Winter 2010-11	Year9 Wmter 2011-12	Expected Failure Cost (Net Present Value @ 10%)
2002	Failure Year 0 scenario	17,000	22,550									$34,091
2003	Failure Year 1 Scenario		17,425	23,114								$34,943
2004	Failure Year 2 Scenario			17,861	23,692							$35,817
2005	Failure Year 3 Scenario				18,307	24,284						$36,712
2006	Failure Year 4 Scenario					18,765	24,891					$37,630
2007	Failure Year 5 Scenario						19,234	25,513				$38,571
2008	Failure Year 6 Scenario							19,715	26,151			$39,535
2009	Failure Year 7 Scenario								20,208	26,805		$40,523
2010	Failure Year 8 Scenario									20,713	27,475	$41,536

City Gate **Peak** Day **Purchase** Option

Compressor **Failure** Expected Cost ($ Thousand)

Year		Year 0 Winter 2002-03	Year1 Winter 2003-04	Year2 Winter 2004-05	Year3 Winter 2005-06	Year4 Wmter 2006-07	Year5 Winter 2007-08	Year6 Winter 2008-09	Year7 Winter 2009-10	Year8 Winter 2010-11	Year9 Winter 2011-12	Expected Failure Cost (Net Present Value @ 10%)
2002	Failure Year 0 Scenario	13,800	14,145									$24,236
2003	Failure Year 1 Scenario		14,145	14,499								$24,841
2004	Failure Year 2 Scenario			14,499	14,861							$25,462
2005	Failure Year 3 Scenario				14,861	15,233						$26,099
2006	Failure Year 4 Scenario					15,233	15,613					$26,751
2007	Failure Year 5 Scenario						15,613	16,004				$27,420
2008	Failure Year 6 Scenario							16,004	16,404			$28,106
2009	Failure Year 7 Scenario								16,404	16,814		$28,808
2010	Failure Year 8 Scenario									16,814	17,234	$29,529

Compressor Replacement Cost - Net Present Value (S Thousand)

Year		Year 0 Winter Now	Year1 Winter 2002-03	Year2 Wmter 2003-04	Year3 Winter 2004-05	Year 4 Winter 2005-06	Year5 Winter 2006-07	Year6 Winter 2007-08	Year7 Winter 2008-09	Year8 Winter 2009-10	Year9 Winter 2010-11	Net Present Value @ 10%
2002	Replacement Cost - Now	12,000	12,300									23,182
2003	Replacement Cost - Yr 1	0	12,300	12,608								21,601
2004	Replacement Cost - Yr 2	0		12,608	12,923							22,141
2005	Replacement Cost - Yr 3	0			12,923	13,246						22,695
2006	Replacement Cost - Yr 4	0				13,246	13,577					23,262
2007	Replacement Cost - Yr 5	0					13,577	13,916				23,844
2008	Replacement Cost - Yr 6	0						13,916	14,264			24,440
2009	Replacement Cost - Yr 7	0							14,264	14,621		25,051
2010	Replacement Cost - Yr 8	0								14,621	14,986	25,677

Troy Grove Compressor Failure Cost Estimates

Attachment I

($ Thousand)

Firm **Transportation Costs To Replace** Lost Compressor **Volumes**
Failure 1 112 Year Replacement (2 Winters) -
Firm transportation purchased by **Nicor** Gas

Year 0 Failure Cost **Estimate**	Year	**Year 1**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	5,000		**5,000**
Additional Firm Transportation - 2nd Winter (112 Year)		10,250	**10,250**
Compressor Replacement Cost	**12,000**	**12,300**	**24,300**
Estimated failure cost	17,000	22,550	**39,550**

Year 1 Failure Cost **Estimate**	**Year 1**	**Year 2**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**5,125**		**5,125**
Additional Firm Transportation - 2nd Winter (112 Year)		**10,506**	**10,506**
Compressor Replacement Cost	**12,300**	**12,608**	**24,908**
Estimated failure cost	**17,425**	**23,114**	**40,539**

Year 2 Failure Cost Estimate	**Year 2**	**Year 3**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**5,253**		**5,253**
Additional Firm Transportation - 2nd Winter (112 Year)		**10,769**	**10,769**
Compressor Replacement Cost	**12,608**	**12,923**	**25,530**
Estimated failure cost	**17,861**	**23,692**	**41,552**

Year 3 Failure Cost **Estimate**	Year	**Year 4**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**5,384**		**5,384**
Additional Firm Transportation - 2nd Winter (112 Year)		11,038	**11,038**
Compressor Replacement Cost	**12,923**	**13,246**	**26,168**
Estimated failure cost	18,307	24,284	**42,591**

Year 4 Failure Cost **Estimate**	Year	**Year 5**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	5,519		**5,519**
Additional Firm Transportation - 2nd Winter (112 Year)		11,314	**11,314**
Compressor Replacement Cost	**13,246**	**13,577**	**26,823**
Estimated failure cost	18,765	24,891	**43,656**

Year 5 Failure Cost **Estimate**	**Year 5**	**Year 6**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**5,657**		**5,657**
Additional Firm Transportation - 2nd Winter (112 Year)		**11,597**	**11,597**
Compressor Replacement Cost	**13,577**	**13,916**	**27,493**
Estimated failure cost	**19,234**	**25,513**	**44,747**

Year 6 Failure Cost Estimate	**Year 6**	**Year 7**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**5,798**		**5,798**
Additional Firm Transportation - 2nd Winter (112 Year)		**11,887**	**11,887**
Compressor Replacement Cost	**13,916**	**14,264**	**28,181**
Estimated failure cost	**19,715**	**26,151**	**45,866**

Year 7 Failure Cost Estimate	**Year 7**	**Year 8**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**5,943**		**5,943**
Additional Firm Transportation - 2nd Winter (112 Year)		**12,184**	**12,184**
Compressor Replacement Cost	**14,264**	**14,621**	**28,885**
Estimated failure cost	**20,208**	**26,805**	**47,013**

Year 8 Failure Cost **Estimate**	**Year 8**	**Year 9**	**Total**
Additional Firm Transportation - 1st Winter (112 Year)	**6,092**		**6,092**
Additional Firm Transportation - 2nd Winter (112 Year)		**12,489**	**12,489**
Compressor Replacement Cost	**14,621**	**14,986**	**29,607**

Troy Grove Compressor Failure Cost Estimates

Attachment J

($ Thousand)

Firm Transportation Costs To Replace Lost Compressor Volumes

Failure 1 112 Year Replacement (2 Winters) -
Firm transportation purchased by **Nicor** Gas

Year 0 Failure Cost Estimate	Year	Year 1	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,000		5,000
Additional Firm Transportation - 2nd Winter (112 Year)		10,250	10,250
Compressor Replacement Cost	12,000	12,300	24,300
Estimated failure cost	17,000	22,550	39,550

Year 1 Failure Cost Estimate	Year 1	Year 2	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,125		5,125
Additional Firm Transportation - 2nd Winter (112 Year)		10,506	10,506
Compressor Replacement Cost	12,300	12,608	24,908
Estimated failure cost	17,425	23,114	40,539

Year 2 Failure Cost Estimate	Year 2	Year 3	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,253		5,253
Additional Firm Transportation - 2nd Winter (112 Year)		10,769	10,769
Compressor Replacement Cost	12,608	12,923	25,530
Estimated failure cost	17,861	23,692	41,552

Year 3 Failure Cost Estimate	Year 3	Year	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,384		5,384
Additional Firm Transportation - 2nd Winter (112 Year)			
Compressor Replacement Cost	12,923		
Estimated failure cost	18,307	24,284	42,591

Year 4 Failure Cost Estimate	Year 4	Year 5	T
Additional Firm Transportation - 1st Winter (112 Year)	5,519		5,519
Additional Firm Transportation - 2nd Winter (112 Year)		11,314	11,314
Compressor Replacement Cost	13,246	13,577	26,823
Estimated failure cost	18,765	24,891	43,656

Year 5 Failure Cost Estimate	Year 5	Year 6	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,657		5,657
Additional Firm Transportation - 2nd Winter (112 Year)		11,597	11,597
Compressor Replacement Cost	13,577	13,916	27,493
Estimated failure cost	19,234	25,513	44,747

Year 6 Failure Cost Estimate	Year 6	Year 7	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,798		5,798
Additional Firm Transportation - 2nd Winter (112 Year)		11,887	11,887
Compressor Replacement Cost	13,916	14,264	28,181
Estimated failure cost	19,715	26,151	45,866

Year 7 Failure Cost Estimate	Year 7	Year 8	Total
Additional Firm Transportation - 1st Winter (112 Year)	5,943		5,943
Additional Firm Transportation - 2nd Winter (112 Year)		12,184	12,184
Compressor Replacement Cost	14,264	14,621	28,885
Estimated failure cost	20,208	26,805	47,013

Year 8 Failure Cost Estimate	Year 8	Year	Total
Additional Firm Transportation - 1st Winter (112 Year)	6,092		6,092
Additional Firm Transportation - 2nd Winter (112 Year)		12,489	12,489
Compressor Replacement Cost	14,621	14,986	29,607

nicor GAS

MEMORANDUM

Date: March 26,2002

Subject: Troy Grove Compressor Replacement

From: Bob Mudra

To: Mario Morrell

cc: Joe Deters
Doug Ruschau

Background:

The Supply Operations Department is evaluating an equipment upgrade at Troy Grove that will enable a two-year deferral of the Cooper engine-compressor replacement (units #28 and 29). The Cooper compressors are currently scheduled for replacement in 2005; however, with the necessary engine, compressor and filter upgrades these units are expected to last until 2007 before replacement is required.

Analysis:

The relevant question is "Will a $1.2 million investment in 2002 generate sufficient economic deferral value between 2005 and 2007?" (Scenario A) On the other hand, Nicor could potentially benefit from the special accelerated tax depreciation recently passed under the Stimulus Bill (HR 3090) if the equipment were to be placed in service prior to 2005. (Scenario B). Finally, the base case replacement schedule is 2005 without any upgrades (Scenario C). The scenarios, projected investments and results are illustrated below:

Capital Investment Plan

	Description	NPV	Economic Advantage	2002	2004	2005	2007
A	Upgrade & Deferral	($14.7)	$1.3	($1.2)			($27.2)
B	Accelerate Replacement	($16.4)	($.4)		($25.2)		
C	Normal Replacement	($16.0)				($25.8)	

Conclusion:

As illustrated above, a decision to upgrade the Troy Grove compressors in 2002 will provide a $1.3 MM economic advantage while creating a two-year deferral until 2007. Furthermore, despite the benefits of accelerated tax depreciation, accelerating replacement to 2004 is $400,000 less attractive than the current plan C. Therefore, the 2002 upgrade and subsequent deferral should be implemented.

EAM

LINE	RESULTS		
1	NPV OF CASH FLOWS (DISCOUNT RATE =	10.00%)	($14,685)
2	PRESENT VALUE OF REV REQ (SAVINGS)		$24,341
3	LEVELIZED REVENUE REQUIREMENT		$2,534
	INTERNAL RATE OF RETURN		#DIV/0!
4	RETURN ON EQUITY		#DIV/0!
5	TOTAL PROJECT CAPITAL INVESTMENT		$28,320
6	PROJECT LIFE		30
7			
8			

OPERATING CASH FLOW

9	PROJECT YEAR	0	1	2	3	4	5	6	7	8	9	10
10	INVESTMENT	($1,166)	$0	$0	$0	$0	($27,154)	$0	$0	$0	$0	$0
11	NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0	0
12	OPERATING REVENUES	0	0	0	0	0	0	0	0	0	0	0
13	OPERATING EXPENSES	0	(237)	0	0	0	0	0	0	0	0	0
14	OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0	0
15	INV CAPITAL TAX	0	(9)	(9)	(8)	(8)	(225)	(216)	(203)	(190)	(179)	(168)
16	INC TAX	0	121	47	43	39	660	1,138	1,029	932	845	765
17	CASH FLOW	($1,166)	($125)	$39	$34	$31	($26,719)	$922	$826	$742	$666	$597
18	CUML CASH FLOW	($1,166)	($1,291)	($1,253)	($1,218)	($1,188)	($27,907)	($26,984)	($26,158)	($25,416)	($24,751)	($24,154)
19												

INCOME TAX BEFORE INTEREST EXPENSE

20	PROJECT YEAR	1	2	3	4	5	6	7	8	9	10
21	REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22	LESS - OPERATING EXPENSES	237	0	0	0	0	0	0	0	0	0
23	- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0
24	- TAX DEPR	58	111	100	90	1,439	2,652	2,390	2,160	1,951	1,761
25	- ICT	9	9	8	8	225	216	203	190	179	168
26	TAXABLE INCOME	(305)	(120)	(108)	(98)	(1,663)	(2,868)	(2,593)	(2,350)	(2,130)	(1,929)
27	INCOME TAXES	($121)	($47)	($43)	($39)	($660)	($1,138)	($1,029)	($932)	($845)	($765)
28											

ICT

29	PROJECT YEAR	1	2	3	4	5	6	7	8	9	10
30	BEG BOOK BASIS	$1,166	$1,127	$1,088	$1,049	$28,165	$27,221	$26,277	$25,333	$24,389	$23,445
31	LESS: PREV DEFERRED TAXES	0	8	36	60	81	277	954	1,528	2,011	2,410
32	TAXABLE BASIS	1,166	1,119	1,052	989	28,084	26,944	25,322	23,804	22,378	21,035
33	INV CAPITAL TAX	$9	$9	$8	$8	$225	$216	$203	$190	$179	$168
34											

DEPRECIATION

35	PROJECT YEAR		1	2	3	4	5	6	7	8	9	10
36	**BEG TAX BASIS**		$1,166	$1,108	$997	$897	$807	$26,523	$23,871	$21,480	$19,320	$17,370
37	ADDITIONS		0	0	0	0	27,154	0	0	0	0	0
38	ADJ TAX BASIS		1,166	1,108	997	897	27,961	26,523	23,871	21,480	19,320	17,370
39	TAX DEPR	28,320	58	111	100	90	1,439	2,652	2,390	2,160	1,951	1,761
40	CUML TAX DEPR		58	169	269	359	1,797	4,449	6,840	9,000	10,950	12,711
41	ENDING TAX BASIS		1,108	997	897	807	(631)	(3,283)	(5,674)	(7,834)	(9,784)	(11,545)
42	**BEG BOOK BASIS**		1,166	1,127	1,088	1,049	1,011	27,221	26,277	25,333	24,389	23,445
43	ADDITIONS		0	0	0	0	27,154	0	0	0	0	0
44	ADJ BOOK BASIS		1,166	1,127	1,088	1,049	28,165	27,221	26,277	25,333	24,389	23,445
45	BOOK DEPR	28,320	39	39	39	39	944	944	944	944	944	944
46	CUML BOOK DEPR		39	78	117	155	1,099	2,043	2,987	3,931	4,875	5,819
47	ENDING BOOK BASIS		1,127	1,088	1,049	1,011	27,221	26,277	25,333	24,389	23,445	22,501
48												
49												
50												
51												

EAM

UNE

FINANCIAL ASSUMPTIONS			
PERCENTAGEDEBT	43.00%	COMBINED TAX RATE	39.67%
LT DEBT INTEREST RATE	7.80%	INVESTED CAPITAL TAX RATE	0.80%
REQ RETURN ON EQUITY	14.00%	REQ RETURN ON TOTAL CAPITAL (BTX)	11.33%
O&M INFLATION RATE	2.50%	REQ RETURN ON TOTAL CAPITAL (ATX)	10.00%

OPERATING CASH FLOW

PROJECT YEAR	11	12	13	14	15	16	17	18	19	20
INVESTMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0
OPERATING REVENUES	0	0	0	0	0	0	0	0	0	0
OPERATING EXPENSES	0	0	0	0	0	0	0	0	0	0
OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0
INV CAPITAL TAX	(158)	(148)	(138)	(129)	(119)	(109)	(99)	(89)	(80)	(70)
INC TAX	726	723	718	715	710	693	675	672	667	346
CASH FLOW	$567	$575	$579	$586	$591	$585	$576	$583	$587	$275
CUML CASH FLOW										)

INCOME TAX BEFORE INTEREST EXPI

PROJECT YEAR	11	12	13	14	15	16	17	18	19	20
REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LESS - OPERATING EXPENSES	0	0	0	0	0	0	0	0	0	0
- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0
- TAX DEPR	1,671	1,674	1,671	1,674	1,671	1,639	1,602	1,605	1,602	801
- ICT	158	148	138	129	119	109	99	89	80	70
TAXABLE INCOME	(1,829)	(1,822)	(1,809)	(1,802)	(1,790)	(1,748)	(1,701)	(1,694)	(1,682)	(871)
INCOME TAXES	($726)	($723)	($718)	($715)	($710)	($693)	($675)	($672)	($667)	($346)

ICT

PROJECT YEAR	11	12	13	14	15	16	17	18	19	20
BEG BOOK BASIS	$22,501	$21,557	$20,613	$19,669	$18,725	$17,781	$16,837	$15,893	$14,949	$14,005
LESS: PREV DEFERRED TAXES	2,734	3,022	3,312	3,600	3,889	4,178	4,454	4,715	4,977	5,238
TAXABLE BASIS	19,767	18,534	17,301	16,069	14,835	13,603	12,383	11,178	9,972	8,767
INV CAPITAL TAX	$158	$148	$138	$129	$119	$109	$99	$89	$80	$70

DEPRECIATION

PROJECT YEAR	11	12	13	14	15	16	17	18	19	20
BEG TAX BASIS	$15,609	$13,938	$12,265	$10,594	$8,920	$7,249	$5,610	$4,008	$2,403	$801
ADDITIONS	0	0	0	0	0	0	0	0	0	0
ADJ TAX B A N	15,609	13,938	12,265	10,594	8,920	7,249	5,610	4,008	2,403	801
TAX DEPR	1,671	1,674	1,671	1,674	1,671	1,639	1,602	1,605	1,602	801
CUMLTAX DEPR	14,382	16,055	17,726	19,400	21,071	22,710	24,312	25,917	27,519	28,320
ENDING TAX BASIS	(13,216)	(14,889)	(16,560)	(18,234)	(19,905)	(21,544)	(23,146)	(24,751)	(26,353)	(27,154)
BEG BOOK BASIS	22,501	21,557	20,613	19,669	18,725	17,781	16,837	15,893	14,949	14,005
ADDITIONS	0	0	0	0	0	0	0	0	0	0
ADJ BOOK BASIS	22,501	21,557	20,613	19,669	18,725	17,781	16,837	15,893	14,949	14,005
BOOK DEPR	944	944	944	944	944	944	944	944	944	944
CUML BOOK DEPR	6,763	7,707	8,651	9,595	10,539	11,483	12,427	13,371	14,315	15,259
ENDING BOOK BASIS	21,557	20,613	19,669	18,725	17,781	16,837	15,893	14,949	14,005	13,061

EAM

LINE

OPERATING CASH FLOW										
PROJECT YEAR	21	22	23	24	25	26	27	28	29	30
INVESTMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0
OPERATING REVENUES	0	0	0	0	0	0	0	0	0	0
OPERATING EXPENSES	0	0	0	0	0	0	0	0	0	0
OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0
INV CAPITAL TAX	(63)	(58)	(54)	(49)	(45)	(40)	(36)	(31)	(27)	(22)
INC TAX	25	23	21	20	18	16	14	12	11	9
CASH FLOW	($38)	($35)	($33)	($30)	($27)	($24)	($22)	($19)	($16)	($13)
CUML CASH FLOW	($18,687)	($18,722)	($18,755)	($18,784)	($18,812)	($18,836)	($18,857)	($18,876)	($18,892)	($18,905)

INCOME TAX BEFORE INTEREST EXPI										
PROJECT YEAR	21	22	23	24	25	26	27	28	29	30
REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LESS - OPERATING EXPENSES	0	0	0	0	0	0	0	0	0	0
- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0
- TAX DEPR	0	0	0	0	0	0	0	0	0	0
- ICT	63	58	54	49	45	40	36	31	27	22
TAXABLE INCOME	(63)	(58)	(54)	(49)	(45)	(40)	(36)	(31)	(27)	(22)
INCOME TAXES	($25)	($23)	($21)	($20)	($18)	($16)	($14)	($12)	($11)	($9)

ICT										
PROJECT YEAR	21	22	23	24	25	26	27	28	29	30
BEG BOOK BASIS	$13,061	$12,117	$11,173	$10,229	$9,285	$8,341	$7,397	$6,453	$5,509	$4,565
LESS: P'R'N DEFERRED TAXES	5,181	4,807	4,432	4,058	3,683	3,309	2,934	2,560	2,185	1,811
TAXABLE BASIS	7,879	7,310	6,740	6,171	5,601	5,032	4,462	3,893	3,323	2,754
INV CAPITAL TAX	$63	$58	$54	$49	$45	$40	$36	$31	$27	$22

DEPRECIATION										
PROJECT YEAR	21	22	23	24	25	26	27	28	29	30
BEG TAX BASIS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ADDITIONS	0	0	0	0	0	0	0	0	0	0
ADJ TAX BASIS	0	0	0	0	0	0	0	0	0	0
TAX DEPR	0	0	0	0	0	0	0	0	0	0
CUML TAX DEPR	28,320	28,320	28,320	28,320	28,320	28,320	28,320	28,320	28,320	28,320
ENDING TAX BASIS	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)
BEG BOOK BASIS	13,061	12,117	11,173	10,229	9,285	8,341	7,397	6,453	5,509	4,565
ADDITIONS	0	0	0	0	0	0	0	0	0	0
ADJ BOOK BASIS	13,061	12,117	11,173	10,229	9,285	8,341	7,397	6,453	5,509	4,565
BOOK DEPR	944	944	944	944	944	944	944	944	944	944
CUML BOOK DEPR	16,203	17,147	18,091	19,035	19,979	20,923	21,867	22,811	23,755	24,699
ENDING BOOK BASIS	12,117	11,173	10,229	9,285	8,341	7,397	6,453	5,509	4,565	3,621

EAM

LINE											
1											
2											
3											
4											
5											
6											
7											
8											
9	**OPERATING CASH FLOW**										
10	PROJECT YEAR	31	32	33	34	35	36	37	38	39	40
11	INVESTMENT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	NON-DEPR INVESTMENT	0	0	0	0	0	0	0	0	0	0
13	OPERATING REVENUES	0	0	0	0	0	0	0	0	0	0
14	OPERATING EXPENSES	0	0	0	0	0	0	0	0	0	0
15	OTHER EXPENSE	0	0	0	0	0	0	0	0	0	0
16	INV CAPITAL TAX	(17)	(13)	(9)	(4)	0	0	0	0	0	0
17	INC TAX	7	5	3	2	0	0	0	0	0	0
18	CASH FLOW	($11)	($8)	($5)	($3)	$0	$0	$0	$0	$0	$0
19	CUML CASH FLOW	($18,916)	($18,924)	($18,929)	($18,932)	($18,932)	($18,932)	($18,932)	($18,932)	($18,932)	($18,932)
20											
21	**INCOME TAX BEFORE INTEREST EXPI**										
22	PROJECT YEAR	31	32	33	34	35	36	37	38	39	40
23	REVENUES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
24	LESS - OPERATING EXPENSES	0	0	0	0	0	0	0	0	0	0
25	- OTHER EXPENSES	0	0	0	0	0	0	0	0	0	0
26	- TAX DEPR	0	0	0	0	0	0	0	0	0	0
27	- ICT	17	13	9	4	0	0	0	0	0	0
28	TAXABLE INCOME	(17)	(13)	(9)	(4)	0	0	0	0	0	0
29	INCOME TAXES	($7)	($5)	($3)	($2)	$0	$0	$0	$0	$0	$0
30											
31	**ICT**										
32	PROJECT YEAR	31	32	33	34	35	36	37	38	39	40
33	BEG BOOK BASIS	$3,621	$2,715	$1,810	$905	$0	$0	$0	$0	$0	$0
34	LESS: PREV DEFERRED TAXES	1,436	1,077	718	359	0	0	0	0	0	0
35	TAXABLE BASIS	2,184	1,638	1,092	546	0	0	0	0	0	0
36	INV CAPITAL TAX	$17	$13	$9	$4	$0	$0	$0	$0	$0	$0
37											
38	**DEPRECIATION**										
39	PROJECT YEAR	31	32	33	34	35	36	37	38	39	40
40	BEG TAX BASIS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
41	ADDITIONS	0	0	0	0	0	0	0	0	0	0
42	ADJ TAX BASIS	0	0	0	0	0	0	0	0	0	0
43	TAX DEPR	0	0	0	0	0	0	0	0	0	0
44	CUML TAX DEPR	28,320	28,320	28,320	28,320	28,320	28,320	28,320	28,320	28,320	28,320
45	ENDING TAX BASIS	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)	(27,154)
46	BEG BOOK BASIS	3,621	2,715	1,810	905	0	0	0	0	0	0
47	ADDITIONS	0	0	0	0	0	0	0	0	0	0
48	ADJ BOOK BASIS	3,621	2,715	1,810	905	0	0	0	0	0	0
49	BOOK DEPR	905	905	905	905	0	0	0	0	0	0
50	CUML BOOK DEPR	25,605	26,510	27,415	28,320	28,320	28,320	28,320	28,320	28,320	28,320
51	ENDING BOOK BASIS	2,715	1,810	905	0	0	0	0	0	0	0

WP (F-4) 2 1/93

Customer Care Information System Project

NICOR GAS COMPANY

BOARD OF DIRECTORS APPROVAL

PROJECT REVISION

Budget Item No. 8971 - CCISP and Credit

This information technology project was undertaken to meet customer unbundling requirements stemming from deregulation, to improve the customer information system infrastructure and capabilities, and to replace the credit and collection application. This project was the successor to the Customer 1 project, Budget Item No. 8947, which was terminated in 1998. This project has been completed under budget due to effective scope and labor management.

Actual Expenditures	$ 23,680,000
Original Authorization	$ 24,600,000
Revision	$ (920,000)

Approved by Financial Policy Committee

Secretary — July 11, 2003 Date

Approved by Board of Directors

Secretary — July 17, 2003 Date

NICOR GAS COMPANY

BOARD OF DIRECTORS APPROVAL

PROJECT REVISION

Budget Item No. 8947 – Customer 1

This information technology project represents the company's initial undertaking to replace the entire customer information system. Due to increasing project costs and associated risks to the business inherent with a "big bang" approach, the project was terminated in 1998. Amounts incurred of about $4 million were deemed to benefit the CCISP and Credit project, Budget Item No. 8971, and accordingly were capitalized.

Actual Expenditures	$ 4,040,000
Original Authorization	$ 27,500,000
Revision	$ (23,460,000)

Approved by Financial Policy Committee

Secretary — July 11, 2003 Date

Approved by Board of Directors

Secretary — July 17, 2003 Date

BOARD MEETING
JANUARY, 2000

January 2000 Board Meeting

Customer Care Information Systems Project (C.C.I.S.)

Current System

- 30+ year old system
- Lack of flexibility:
  Many functions/processes in one primary program
- Difficult to support new products and services
- Limited access to data
- Very difficult to test new applications

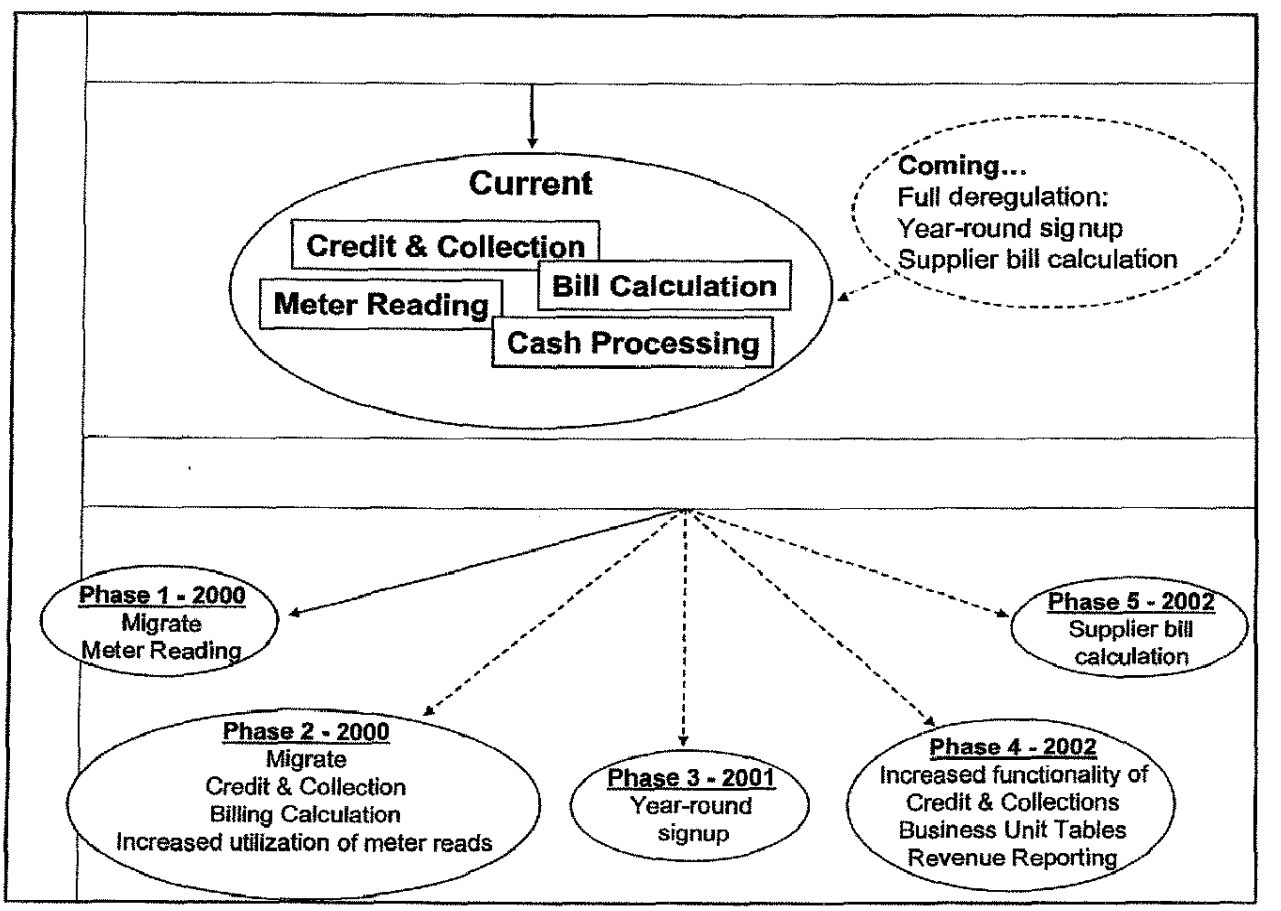
January 2000 Board Meeting

C.C.I.S. Project

Decision: Stabilization & Re-engineering (Limited) *"S&R"*

- Stabilization
  - Fix bugs
  - Enhance system to improve business process
- Re-engineering (Limited)
  - Remove current bottle necks in system
  - Enhance Nicor's ability to meet future needs

January 2000 Board Meeting



January 2000 Board Meeting

C.C.I.S. Project

- Timeframe - Completion date mid 2002
- Resources
  - Estimated cost $20 - 30 million (total cost)
- Largest IT Project
- Intermediate solution
- Keane, Inc. - Project Consultant

January 2000 Board Meeting

C.C.I.S. Project

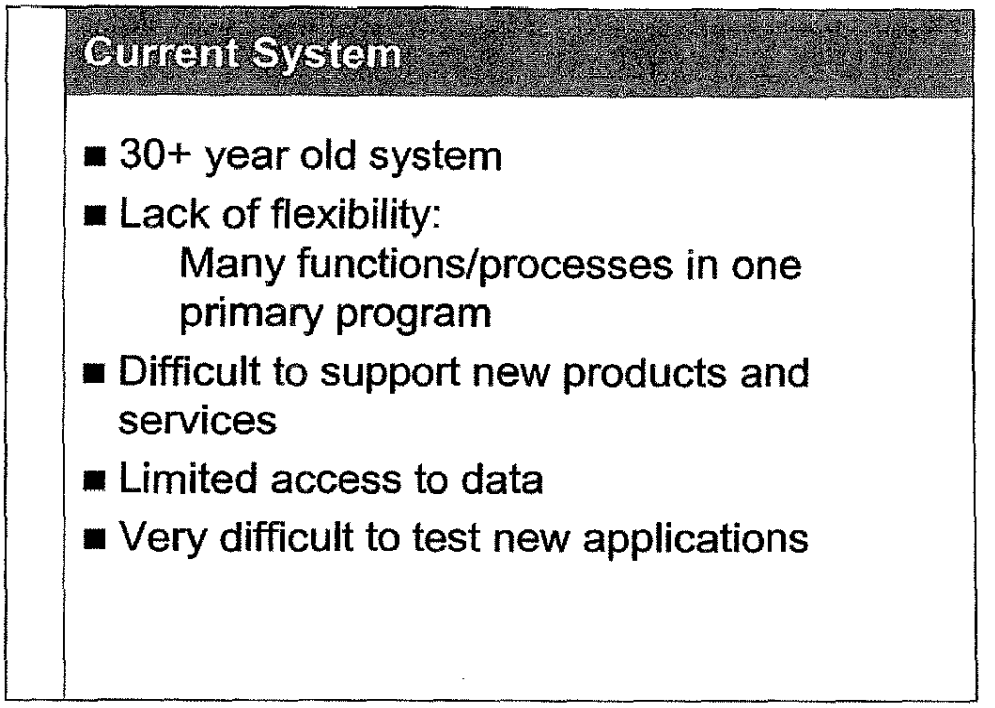
	Funding Request
Capital	
Labor	$4,862,000
Hardware	1,200,000
Administrative	429,000
Contingency 30%	1,897,000
Total 2000 Capital	$8,338,000

January 2000 Board Meeting

Customer Care Information Systems Project (C.C.I.S.)

Today, I would like your approval for $8.3mm for funding the Customer Care Information System project for the year 2000. Currently, our total cost estimate is $20 - $30 mm for both capital and operating expense for this 2 1/2 year project.

January 2000 Board Meeting



The deficiancies of our current system have been shared with the board at past meetings.

I would like to review WHY we need to do this project. Our current system was designed 30 years ago. Many business function and processes were created in one large primary program we call our Customer Information System. This large system is not flexible. It is almost impossible to have programmers working concurrently on the system. The system design does not provide business users very easy access to data. System changes are so cumbersome that it is very difficult to add code to support any new services (i.e... Gas Line Comfort Guard). The system design also makes it very difficult to test new application.

We researched many alternatives:

Purchase Full Package:

Replace the current CIS / Billing system with a package. Implementing all functions at one time. **Customer One -** stopped in 1998

Functional Migration:

Replace the current CIS / Billing system with a package. Implementing business functions in a phased more over several years.

Outsource (Full Package):

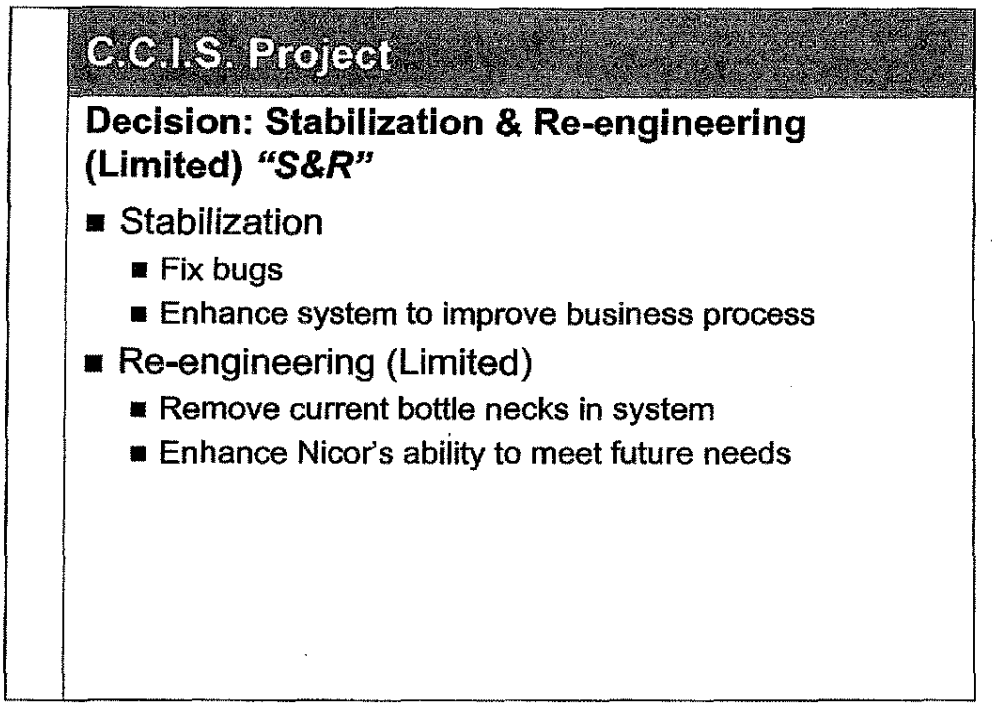
Partner with a company charging Nicor a fee to operate and maintain all customers on their CIS / Billing systems and their technical infrastructure.

Outsource (Partial Package):

Partner with a company charging Nicor a fee to operate and maintain a select segment of our customers on their CIS / Billing systems and their technical infrastructure.

Continue As Is:

January 2000 Board Meeting



Our decision is to stabilize and re-engineer our current system. Stabilization & Re-engineering (limited) S & R - best supports Nicor Gas' financial and business objectives.

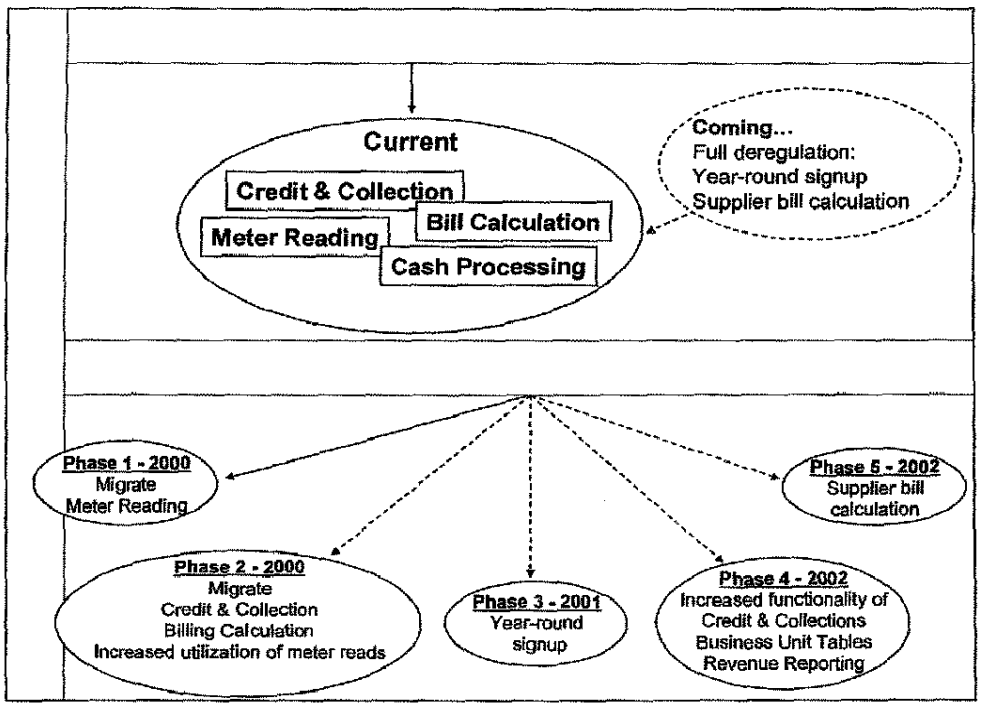
Stabilization:

We need to fix existing incomplete processes and develop an improved quality assurance and testing process.

Re-engineering: NOT total/custom re-write

We need to modularize (or break apart) the system to reduce complexity and bottlenecks. This would allow increased flexibility for new business processes and meet future needs.

January 2000 Board Meeting



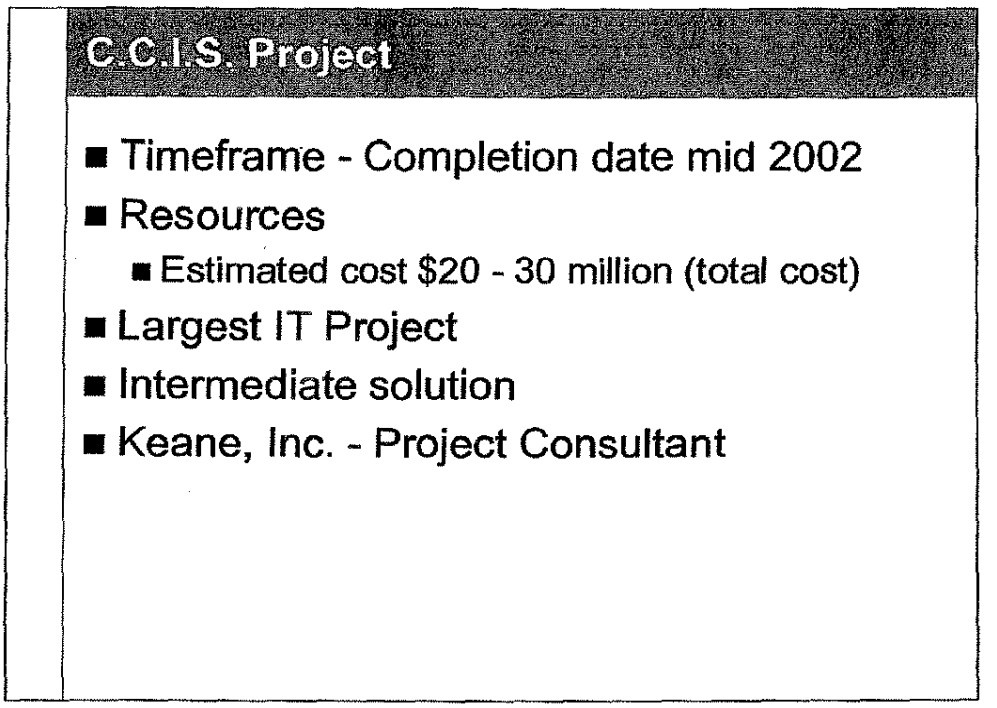
Our current Customer Information System as I explained earlier has all the processes together in one large program. With deregulation, we need to provide year-round sign-up, ability to move contracts, and allow brokers to bill Nicor's charges.

The Customer Care Information System project is broken into five phases. The funding I am requested is for Phase I & II which will be completed in 2000.

In Phase 1: we will break apart meter reading programs.

In Phase II: we will break apart Credit and Collection and the Bill calculation programs and increase the utilization of meter reads.

January 2000 Board Meeting



This project is planned for completion in mid 2002. The total cost of the project is $20 - $30 MM about 80%is capital and 20%is operating expense.

This will be our largest IT project . The Customer Care Information System project is not a permanent (long-term)solution but provides us a intermediate term solution for the next five to seven years.

We have selected Keane, Inc. as the project consultant. They will be assisting us in the project management, Quality Assurance and application architecture. Some of their past engagements have been - Peoples Energy, Unicom, Comdisco and Mc Donald's where they have received very favorable reviews and results.

January 2000 Board Meeting

C.C.I.S. Project

	Funding Request
Capital	
Labor	$4,862,000
Hardware	1,200,000
Administrative	429,000
Contingency 30%	1,897,000
Total 2000 Capital	$8,338,000

The $8.3mm I have requested is for funding for the year 2000.

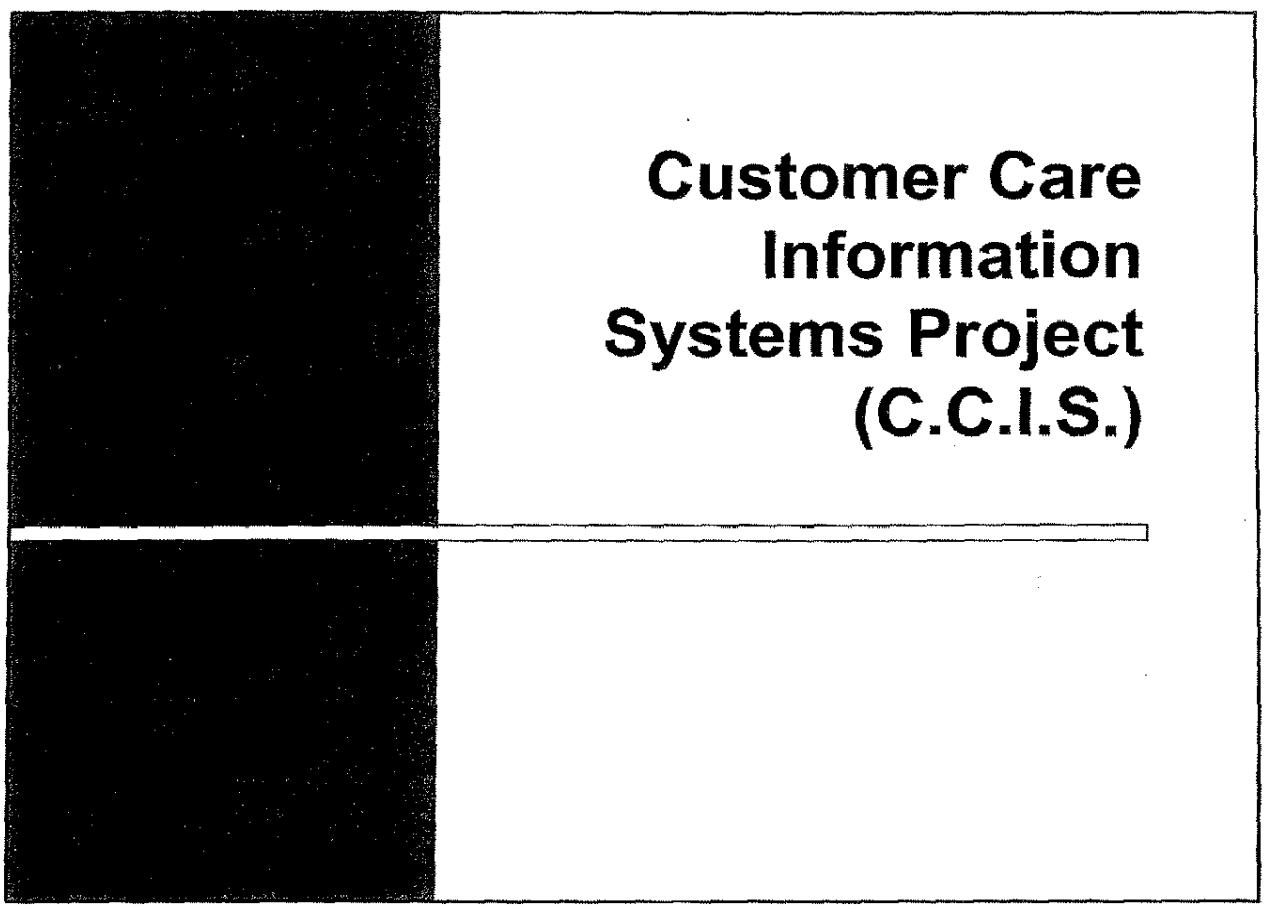
We have included another $1.7mm of operating expense in our year 2000 budget for this project.

We will keep you updated on our progress and return for approval later this year for funding for future years.

ARE THEIR ANY QUESTIONS???????

BOARD MEETING
JANUARY, 2001

January 2001 Board Meeting



January 2001 Board Meeting

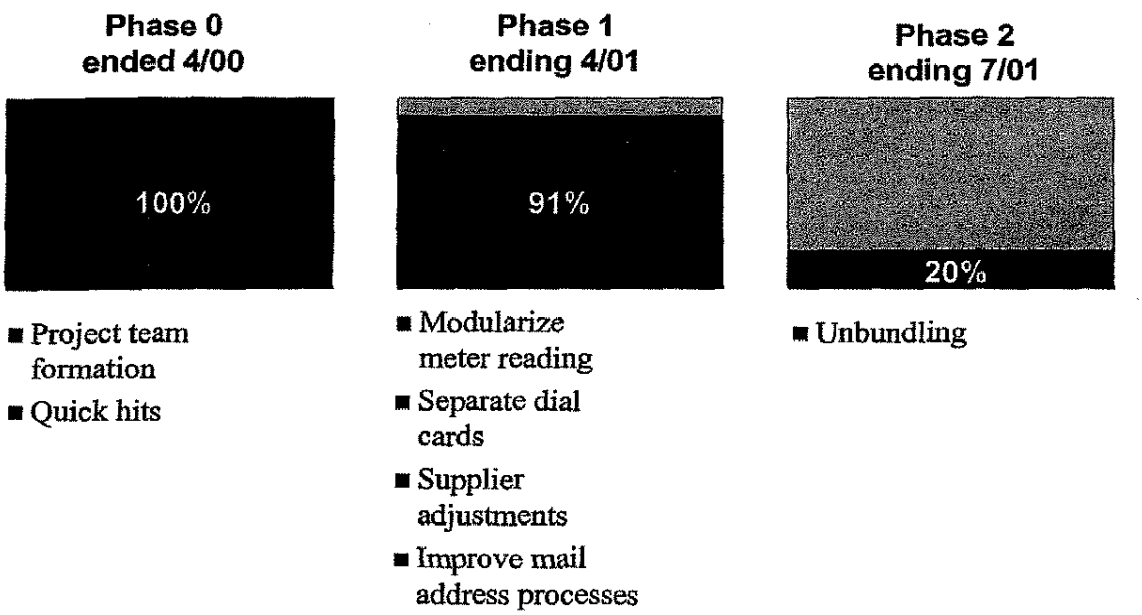
C.C.I.S. Project

- 30+ year old system
- Difficult to support new products and services
- Very difficult to test new applications
- Timeframe - Completion date 2002
- Largest IT Project
- 5 -7 Year solution

January 2001 Board Meeting

2000 Accomplishments
(Phases 0-3 of 5 Phases)

☐ Percentage completed



- Project team formation
- Quick hits

- Modularize meter reading
- Separate dial cards
- Supplier adjustments
- Improve mail address processes

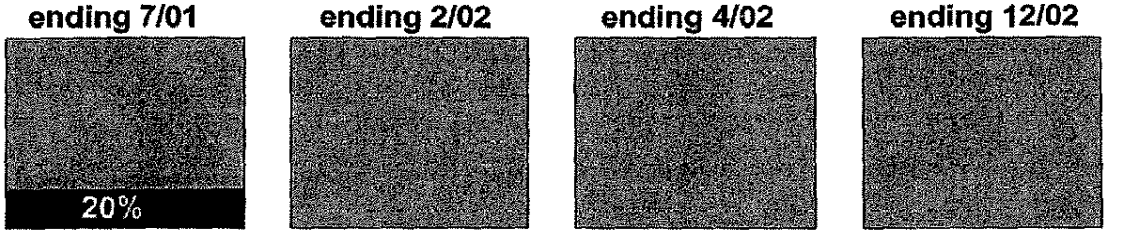
- Unbundling

January 2001 Board Meeting

Revised Timeline – 2001

(Phases 2-5 of 5 Phases)

☐ Percentage completed



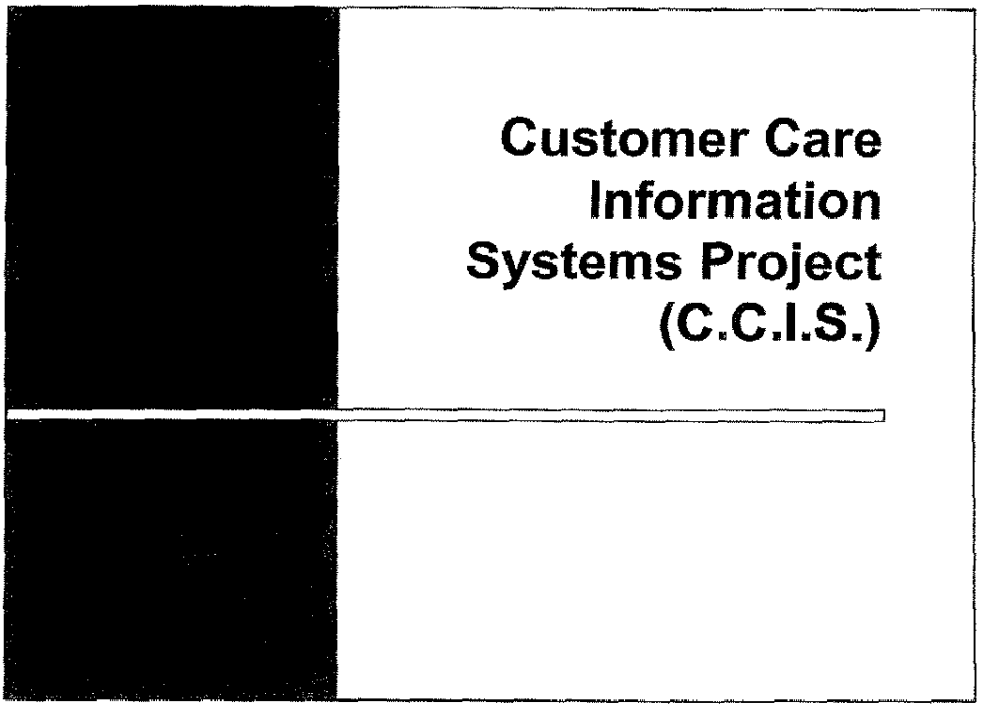
Phase 2 ending 7/01	Phase 3 ending 2/02	Phase 4 ending 4/02	Phase 5 ending 12/02
■ Modularize credit & collection ■ Billing calculation ■ Cancel and rebill	■ Billing investigations ■ Increased use of meter reads ■ Additional storage options	■ Business unit tables ■ Revenue reporting ■ Customer profiling (credit)	■ Further unbundling

January 2001 Board Meeting

C.C.I.S. Project
($ millions)

	2000 Actual	2000 Carryover	2001 Funding Request
Capital			
Labor	$2.7	$1.5	$4.1
Hardware/Software:			
Testing Environment	2.1		
Credit Package	-	-	2.0
Administrative	1.1	-	1.1
Contingency 15%	-	.9	.4
Total Capital	$5.9	$2.4	$7.6

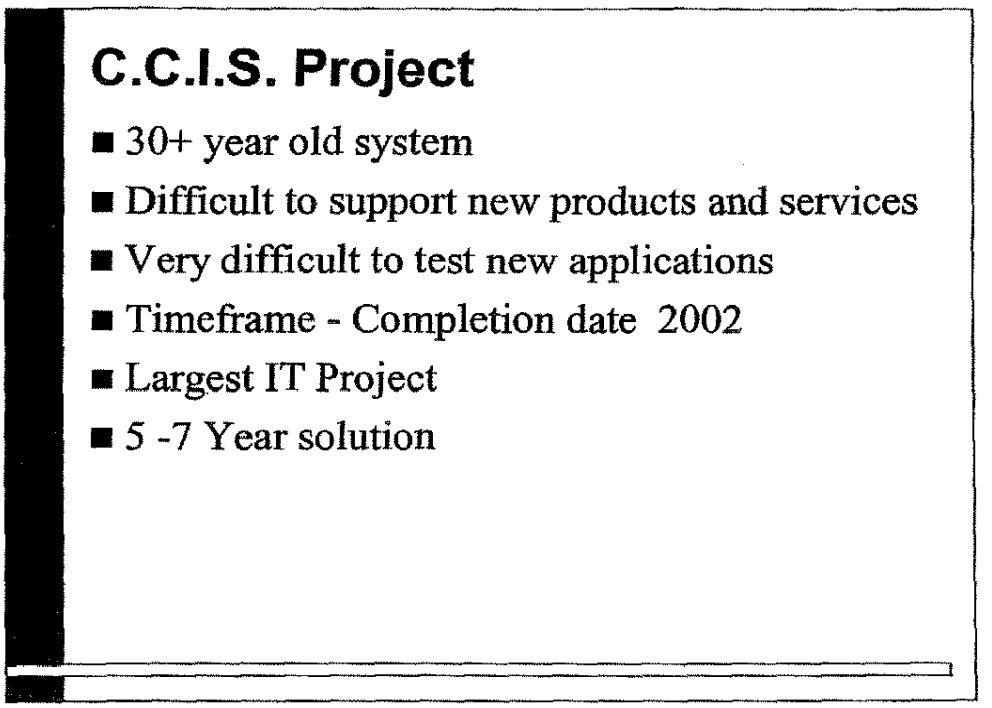
$10.0



Today, I would like to ask for your approval for $7.6M for additional funding for the Customer Care Information System project for the year 2001. (20-01)

Last year, you approved $8.4M for funding the CCISP.

Currently, our total cost estimate is $25 - $30 M for both capital and operating expense for this project.

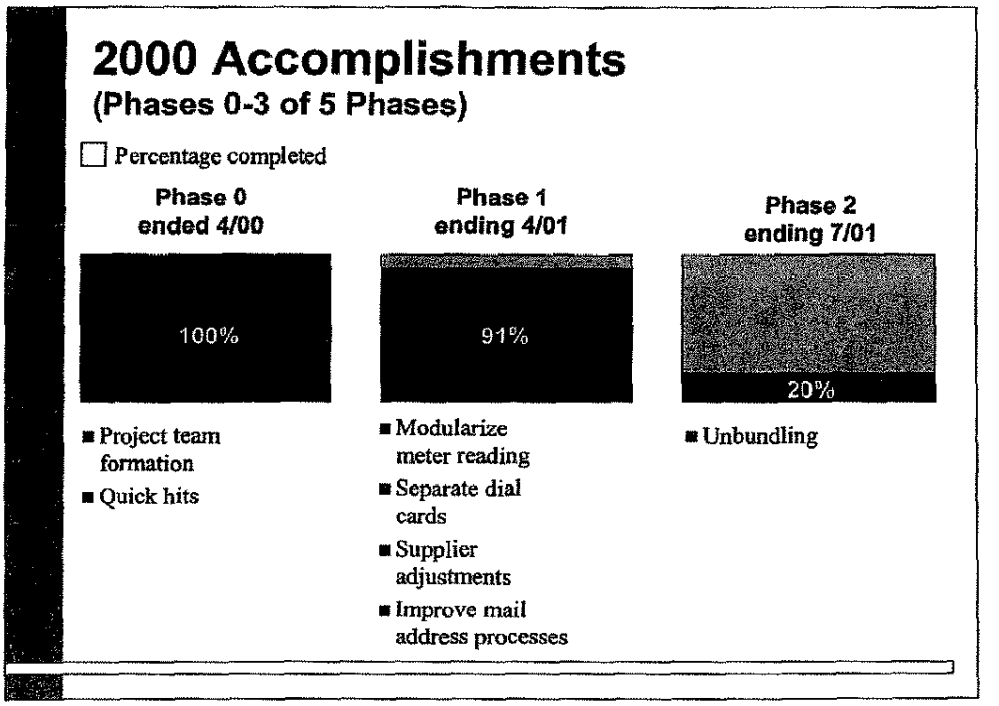


The deficiancies of our current system have been shared with the board at past meetings. My first 3 bullets review WHY we need to continue this project.

This project is planned for completion in 2002. (20-02)

This is our largest IT project ever.

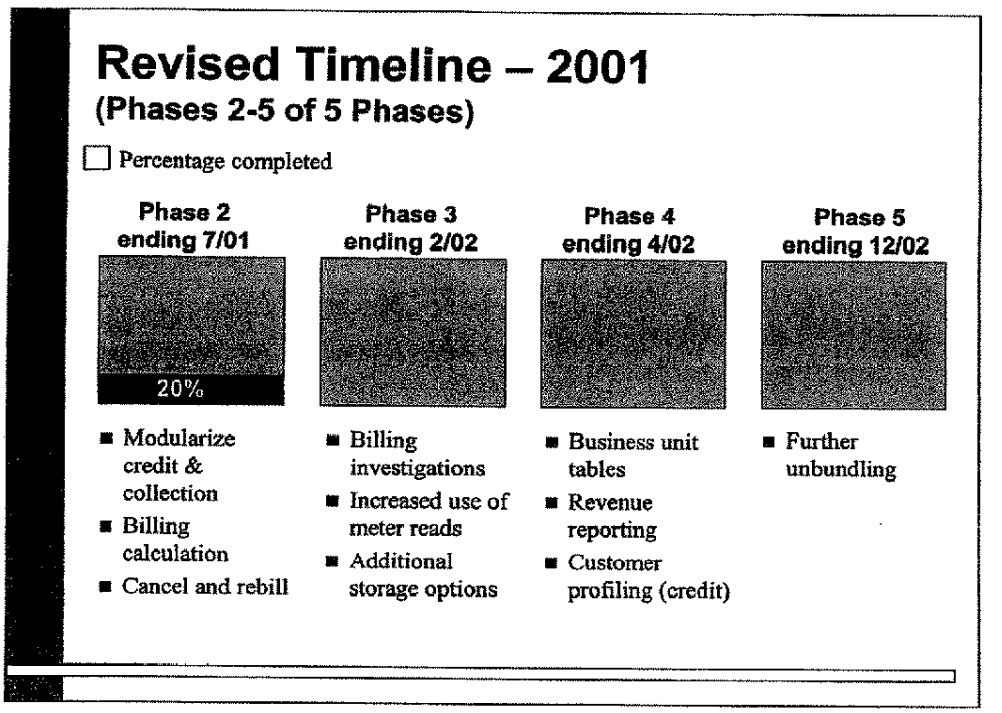
The Customer Care Information System project is not a permanent (long-term)solution but provides us a intermediate term solution for the next five to seven years.



This chart provides some of our accomplishments last year.

We had originally planned to complete phases 0 through 2 in 2000.

As you would expect scope changes within the project such as (Credit, Customer Centric, Address and returned mail, IS capabilities and transformation) and scope changes outside of the project such as(Suspend state tax on natural gas, Mercury) have modified our time line and expenditures during last year.



Discussion Points:

The Customer Care Information System project is broken into five phases. The funding I am requesting is for Phase II & III which will be completed in 2001. (20-01)

In Phase II: we will break apart Credit and Collections and the Bill calculation programs , and improve Nicor's process of canceling bills that contain errors and the associated rebilling.

In Phase III: we will improve the billing investigation process, increase the utilization of meter reads and increase storage options for the suppliers.

Customer Select year 4 - CSEL Year 4 modifications consist of updating Bill Messages for Dec-March, creating mailing transcripts, applying changes to Letters and testing with any new suppliers(Energy.com), basically insuring the process that was utilized last year is updated (dates) and carried forward into 2001.

C.C.I.S. Project
($ millions)

	2000 Actual	2000 Carryover	2001 Funding Request
Capital			
Labor	$2.7	$1.5	$4.1
Hardware/Software:			
Testing Environment	2.1		
Credit Package	-	-	2.0
Administrative	1.1	-	1.1
Contingency 15%	-	.9	.4
Total Capital	$5.9	$2.4	$7.6

$10.0

The $7.6 M I have requested is for funding for the year 2001. (20-01)

Last Year we spent $5.9M of the approved $8.4M the $2.4 not spent in 2000 is being carried forward to 20-01.

We have included another $2.5M of operating expense in our year 2001 budget for this project. 2000 actual $1.1M Operating Expense. Approved $1.7M Operating Expense

We will keep you updated on our progress and return for approval next year for funding for future years.

ARE THEIR ANY QUESTIONS???????

Rocco: No anticipated additional hardware expenditure expected for 2001 besides what is embedded in the credit package.